

CLAIMS

What is claimed is:

1 1. An intramedullary nail for insertion into a cavity formed in a fractured bone, comprising:
2 a proximal portion of the nail having (i) a first end, (ii) a second end opposite the first
3 end, (iii) a cylindrically shaped, tubular body extending between the first and the second
4 ends and having a curved longitudinal axis, and (iv) an end plate disposed at the first end
5 of the proximal portion of the nail and attached to the cylindrically shaped, tubular body;
6 a distal portion of the nail; and
7 a cylindrically shaped, tubular shaft portion of the nail extending between the second
8 end of the proximal portion of the nail and the distal portion of the nail.

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1 2. The intramedullary nail according to claim 1, wherein an aperture formed by an
2 inner periphery of the cylindrically shaped, tubular body is closed by the end plate.

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1 3. The intramedullary nail according to claim 1, wherein:
2 the end plate includes a first screw hole;
3 the cylindrically shaped, tubular body includes a corresponding second screw hole;
4 and
5 the first and the second screw holes are aligned so as to direct a locking screw
6 inserted in the first screw hole through the second screw hole and into a fragment of the

7 fractured bone.

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1 4. The intramedullary nail according to claim 1, wherein the end plate includes a first
2 screw hole, the cylindrically shaped, tubular body includes a corresponding second screw
3 hole, and further comprising;
4 a locking screw extending from the first screw hole, through the second screw hole,
5 and into a fragment of the fractured bone.

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1 5. The intramedullary nail according to claim 4, wherein:
2 the fractured bone is a femur;
3 the bone fragment is a portion of the femur having at least one of a greater
4 trochanter and a lesser trochanter; and
5 the locking screw extends into one of the greater trochanter and the lesser
6 trochanter.

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1 6. The intramedullary nail according to claim 4, wherein the locking screw has a
2 hollow core with threads formed on the outer periphery of the hollow core, and further
3 comprising:
4 a solid cylindrical screw insert disposed within the hollow core and engaging the
5 threads.

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1 7. The intramedullary nail according to claim 1, wherein:

the end plate includes a screw hole configured to engage a locking screw and direct the locking screw into a fragment of the fractured bone; and
with the intramedullary nail fully inserted into the fractured bone cavity, the screw hole in the end plate is visible to the naked eye of the surgeon.

8. The intramedullary nail according to claim 7, wherein with the intramedullary nail fully inserted into the fractured bone cavity, the screw hole in the end plate is configured such that the locking screw can be engaged with the screw hole and directed into the fragment of the fractured bone, without a jig.

9. The intramedullary nail according to claim 1, wherein:
the cylindrically shaped, tubular body has a first diameter near the first end of the proximal portion of the nail and a second diameter, smaller than the first diameter, near the second end of the proximal portion of the nail.

10. The intramedullary nail according to claim 1, wherein:
the cylindrically shaped, tubular body has a first diameter near the first end of the proximal portion of the nail; and
the cylindrically shaped, tubular shaft portion has a second diameter, smaller than the first diameter.

11. The intramedullary nail according to claim 1, wherein the proximal portion of the

2 nail is attachable to and removable from the cylindrically shaped, tubular shaft portion of
3 the nail.

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1 12. The intramedullary nail according to claim 11, wherein
2 the cylindrically shaped, tubular body includes a first threaded portion near the
3 second end of the proximal portion of the nail;

4 the cylindrically shaped, tubular shaft portion includes a second threaded portion;
5 and

6 the proximal portion of the nail is attached to the cylindrically shaped, tubular shaft
7 portion of the nail by engagement of the first and second threaded portions.

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1 13. The intramedullary nail according to claim 1, wherein:
2 the longitudinal axis of the cylindrically shaped, tubular body of the proximal portion
3 of the nail is curved in a first plane and in a second plane which intersects the first plane.

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1 14. The intramedullary nail according to claim 13, wherein:
2 the cylindrically shaped, tubular shaft portion of the nail has a longitudinal axis;
3 the longitudinal axis of the cylindrically shaped, tubular body of the proximal portion
4 of the nail is curved in the first plane at an angle in a range of 20° to 25° from the
5 longitudinal axis of the cylindrically shaped, tubular shaft portion of the nail; and

6 the longitudinal axis of the cylindrically shaped, tubular body of the proximal portion
7 of the nail is curved in the second plane at an angle in a range of 5° to 7° from the

8 longitudinal axis of the cylindrically shaped, tubular shaft portion of the nail.

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1 15. The intramedullary nail according to claim 1, wherein:
2 the distal portion of the nail has a cylindrically shaped, tubular body of a first
3 diameter, extending from the cylindrically shaped, tubular shaft portion of the nail; and
4 the cylindrically shaped, tubular shaft portion of the nail has a second diameter,
5 smaller than the first diameter.

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1 16. The intramedullary nail according to claim 15, wherein the cylindrically shaped,
2 tubular body of the distal portion of the nail includes a first screw hole and a corresponding
3 second screw hole, and further comprising:
4 a locking screw extending from the first screw hole, through the second screw hole,
5 and into a fragment of the fractured bone, the locking screw having a head portion and a
6 shaft portion, with the shaft portion having a diameter of no less than 7 mm.

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1 17. The intramedullary nail according to claim 16, wherein the locking screw has a
2 hollow core with threads formed on the outer periphery of the hollow core, and further
3 comprising:
4 a solid screw insert disposed within the hollow core and engaging the threads.

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1 18. The intramedullary nail according to claim 15, wherein the cylindrically shaped,
2 tubular body includes a screw hole configured to engage a locking screw and direct the

DOCKET NO: 3023-005
FILE NO: 1228.42361X00
CLIENT REF: JIGLESS NAIL

- 3 locking screw into a fragment of the fractured bone; and
- 4 with the intramedullary nail fully inserted into the fractured bone cavity, the screw
- 5 hole is configured such that the locking screw can be engaged with the screw hole and
- 6 directed into a fragment of the fractured bone, without a jig.

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